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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/664,338	09/18/2000	Erich Hell	P00,1732	3969

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EXAMINER
KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 07/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/664,338	HELL ET AL.
	Examiner	Art Unit
	Chih-Cheng Glen Kao	2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-8 and 10-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-8,10-15,17,18 and 20* is/are rejected.

7)☒ Claim(s) *3,16,19 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The independent claim recites at least two heat exchange elements while claim 3 recites at least one heat exchange element. The recitation in claim 3 does not further limit claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 6, 8, 10-15, 17, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US patent 5313512) in view of Kroener (US patent 4866743). Tanaka discloses

an x-ray examination arrangement for computed tomography having an x-ray source emitting heat (Fig. 7, #1) which is rotatable around a rotational axis (col. 4, lines 30-32) and a detector mounted opposite each other (Fig. 7, "D"), the improvement of a cooling arrangement for said x-ray source comprising:

a first ring-like heat exchanger (Fig. 6 and 7) disposed having at least two heat exchange elements (Fig. 6, #2a and 2b) thermally conductively connected to each other, with at least one of said heat exchange elements being thermally conductively connected with said x-ray source (Fig. 6, #2a to 1),

wherein said heat exchanger is rotatable around said rotational axis (col. 4, lines 32-33),

wherein said heat exchanger comprises at least one heat exchange element (Fig. 6, #2a),

wherein said heat exchanger has a flow path therein (Fig. 6, #3), and further comprising a heat transfer medium flowing through said heat exchanger in said flow path (col. 4, lines 25-29),

further comprising a covering proceeding circumferentially around said rotational axis and disposed between said at least two heat exchange elements (Fig. 6 and 7, #3).

However, Tanaka does not seem to specifically disclose a gantry and a second exterior ring-like heat exchanger disposed in a thermally conductive path with a first heat exchanger, with said first heat exchanger transferring heat from an x-ray source to said second heat exchanger, said second heat exchanger being stationary relative to said first heat exchanger, wherein said second heat exchanger is annularly disposed around said first heat exchanger, wherein said second heat exchanger is disposed axially offset, along said rotational axis from said first heat exchanger and is attached to first heat exchanger, wherein said second heat exchanger comprises at least one heat exchange element, wherein said second heat exchanger comprises at least two annular heat exchange elements that are thermally conductively connected to each other, further comprising a covering proceeding circumferentially around said rotational axis and disposed between said at least two heat exchange elements of said second heat

exchanger, wherein said second heat exchanger has a flow path therein, further comprising a heat transfer medium flowing through said second heat exchanger in said flow path.

Kroener teaches a gantry (Fig 1, #3),

a second exterior ring-like heat exchanger disposed in a thermally conductive path with a first heat exchanger (Fig. 1, #27), with said first heat exchanger transferring heat from an x-ray source to said second heat exchanger (Fig. 1, #7, 10, 17, and 18), said second heat exchanger being stationary relative to said first heat exchanger (Fig. 1, #24 and 25 connected to #2),

wherein said second heat exchanger is annularly disposed around said first heat exchanger (Fig. 1, #9 and 27),

wherein said second heat exchanger is disposed axially offset, along said rotational axis from said first heat exchanger and is attached to first heat exchanger (Fig. 1, #9 and 27),

wherein said second heat exchanger comprises at least one heat exchange element (Fig. 1, #27),

wherein said second heat exchanger comprises at least two annular heat exchange elements that are thermally conductively connected to each other (Fig. 1, #27),

further comprising a covering proceeding circumferentially around said rotational axis and disposed between said at least two heat exchange elements of said second heat exchanger (Fig. 1, #29),

further comprising a heat transfer medium flowing through said second heat exchanger in said flow path (col. 4, lines 8-11).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the second ring-like heat exchanger components and gantry of

Kroener with the device of Tanaka, since one would be motivated to have a gantry to mount the source, detector and heat exchangers onto while rotating these objects around the subject as shown by Kroener (Fig. 1). Secondly, one would be motivated to have a second ring-like heat exchanger components to intensify the cooling effect as shown by Kroener (col. 2, lines 26-35).

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Kroener as applied to claim 1 above, and further in view of Deucher et al. (US patent 5610968). Tanaka et al. in view of Kroener suggests a device as recited above.

However, Tanaka does not seem to specifically disclose a plurality of annular guide devices disposed at a heat exchanger and conducting an airstream, generated by rotation of said heat exchanger and heated at said heat exchanger, away from said gantry toward an exterior of said gantry.

Deucher et al. teaches a plurality of annular guide devices (Fig. 4, slits above #54) disposed at a heat exchanger and conducting an airstream, generated by rotation of said heat exchanger and heated at said heat exchanger (col. 5, lines 8-13), away from said gantry toward an exterior of said gantry (Fig. 4, #56).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made to have the annular guide devices of Deucher et al. with the device of Tanaka in view of Kroener, since one would be motivated to remove excess heat as shown by Deucher et al. (col. 5, lines 8-13) to remove waste heat (col. 1, lines 25-26).

Allowable Subject Matter

4. Claims 16, 19, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter.

Regarding claims 16, 19, and 21, prior art does not disclose or fairly suggest a plurality of inter-engaging annular guide devices for guiding an airstream from the first to second heat exchanger incorporated with all the limitations of each respective claim, all respective intervening claims, and respective base claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - Th (8 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

gk
June 20, 2002

ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800